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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,086	12/23/2005	Reiner Buettner	4197-125	4140

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EXAMINER	
CALANDRA, ANTHONY J	
ART UNIT	PAPER NUMBER
1791	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/552,086	BUETTNER ET AL.	
	Examiner	Art Unit	
	ANTHONY J. CALANDRA	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 November 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Office Action

The communication dated 11/19/2009 has been entered and fully considered.

Claims 1, 7, 9, 10, and 17 have been amended. Claim 23 is new. Claim 2 is cancelled. Claims 1 and 3-23 are currently pending.

Response to Arguments

112 rejections

The 112 2nd rejections have been withdrawn.

Art rejections

Applicant argues that CHANG is to provide a compound that is environmentally friendly disposable and water dispersible after use while the instant inventions teaches ions which are generated during use.

The examiner believes the applicant is conflating the ability of the cellulose product to disperse after use with the release of ions and agents. The dispersion that CHANG is discussing is the ability of the paper fibers to separate from each other after use under agitation or flushing [0029 and 0045] and then moving through a sewer [0087]. For instance CHANG teaches wet wipes [0073]. These wipes are wet wipes which even though wet have enough strength for use. They are not dispersed until agitated.

The concept of the dispersibility of the fibrous forms is distinct from the release of ions and other agents. It is not clear how the dispersibility of product of CHANG interferes with ion release in a way that is commensurate with the instant claims.

CHANG specifically discloses agents which are functional such as copper and benzoic acid [0103 -104, 0124] and discloses a polyacrylate is weakly cross-linked which is the same as the instant claims. It would be expected that the cellulose products treated in the method of CHANG would also release the ions in equilibrium as the instant claimed method/product and thus meet the feature of the instant claims. It is not clear to the examiner why CHANG would not have the functionality claimed by the applicant.

Applicant argues that CHANG fails to teach a functional cellulose form.

CHANG discloses many forms including wipes and diapers [0073]. Each of the forms is functional and can include additional functional materials such as zinc ions and benzoic acids.

Applicant argues that CHANG fails to disclose the incorporation of polymers into the substrate.

CHANG discloses polyacrylate polymers incorporated into the cellulosic structure [0076, 0184].

Applicant argues that the combination of CHANG with HARADA is improper. Applicant argues that the objective of CHANG is to obtain water soluble compositions and would not be motivated to combine with HARADA which is towards superabsorbent products.

CHANG is both towards products that are both superabsorbent and dispersible. The two concepts are not mutually exclusive. CHANG discloses that being superabsorbent is important [0076, 0084 and 0172]. CHANG also discloses that the products should be dispersible after use

once under agitation [0045 and 0087]. Absorbency is a clear important property of diapers one of the products disclosed by CHANG.

The applicant argues the combination of CHANG with COLLIER.

The examiner found this argument convincing, specifically the person of ordinary skill in the art would not have a reasonable expectation of success by adding polyacrylate additives to the lyocell forming mixture based on the combination of prior art CHANG/COLLIER. The examiner determined based on the applicant's argument a specific teaching of polymers mixed with the lyocell forming composition was required to show a reasonable expectation of success. The examiner presents in the rejection below WO00/63470 BUTTINER et al., for consideration which discloses lyocell formation with a mixture of polyacrylate was successful.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1, 3-13, and 15-23 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U .S. Publication 2003/0055146 CHANG et al., hereinafter CHANG as evidenced by LYOCELL FIBER and U.S. Publication 2003/0159620 KOSAN et al., hereinafter KOSAN.

As for claims 1, 10, 14, 17, 21, 22, and 23 CHANG discloses a cationic polymer solutions [0009, abstract] that may be crosslinked [0055] which can be mixed in with cellulose fibers including lyocell [0074-0075] to form a cellulosic form such as a wet-laid fabric [abstract] The form may contain antimicrobials such as silver salts [0103]. CHANG discloses that the

form may contain lyocell [0075]. CHANG further discloses that the formulation can be applied to the substrate before drying [0171] and then removing the water of the solution. CHANG discloses that the fiber can be a solvent spun lyocell [0175].

CHANG discloses that the fibers may be dried to control the curing to provide a degree of bonding without significant cross-linking [0064]. The examiner has interpreted without a significant degree of cross-linking to mean 'weakly cross-linked'. Additionally CHANG states that the crosslinking must remain sufficiently low that the dispersibility of the article is not affected [0055]. HANG teaches 0% cross-linkers [0054] which teaches towards the low instant claimed range. Upon further review of the prior art document, CHANG also suggests that when co-binders are used that the co-binder percentage should be less than 10% which overlaps with the instant claimed range and 1 to 20% which also overlaps with sufficient specificity with the instant claimed range [0055]. In the alternative as CHANG discloses the preference of low cross-linking and bonding without significant cross-linking, it would have been obvious to the person of ordinary skill in the art to optimize the amount of cross-linking in the product through routine experimentation. CHANG recognizes the importance of low amounts of cross-linking and recognizes that cross-linking is a result effective variable. CHANG teaches the crosslinker N-methylol-acrylamide [0055] which has multiple functional groups [0055].

The examiner notes specifically for the product claims that the product of CHANG appears to have substantially the same structural features including being a form (as i.e. a fabric), weakly cross-linked polyacrylate, and bactericidal ions including zinc and silver. When a prior art product is shown to have similar structural properties the burden shifts to the applicant to show a non-obvious difference caused by the process steps in a product-by-process claim [see

e.g. MPEP 2113]. KOSAN gives evidence that the lyocell spinning process is considered a wet-dry extrusion process [0045]. LYOCELL FIBER gives further evidence of how lyocell is formed and states lyocell is formed by an organic solvent (wet) spun and extruded. The fiber necessarily dries as the solvent is removed, and hence a wet-dry extrusion process.

As for claims 3 and 11, CHANG discloses silver loaded zeolite [0108] and discloses silver salts [0103].

As for claims 4 and 18, CHANG discloses both zinc and mercury ions [0103].

As for claims 5 and 19, CHANG discloses benzoic acid [0124].

As for claims 6 and 20, CHANG discloses between 0.01-1.0% additives [0124] which is equivalent to 0.1 to 20 kg per kg of cellulose which falls within the instant claimed range.

As for claims 7, 13 and 16, CHANG discloses cellulose [0074] and fiber containing fabrics [abstract, 0076].

As for claims 8 and 12, CHANG discloses polyester [0060], regenerated celluloses, and polyamides [0074] can be fibers used in the cellulosic form.

As for claim 9, CHANG discloses that polyacrylate can be present [0076].

As for claim 15, CHANG discloses that polyacrylate can be present [0076] and discloses silver loaded zeolite [0108].

2. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over U .S. Publication 2003/0055146 CHANG et al., hereinafter CHANG in view of U.S. Patent 5,853,867 HARADA.

Claim 14 is rejected as per above. CHANG suggests weakly cross-linking the polymers and suggests that the cross-linking co-binders should be present from less that 10% and between

1 to 20% [0055]. The examiner has stated above that 1 to 20% overlaps with sufficient specificity to the instant claim or alternatively, that it would be obvious to optimize the amount of cross-linking. Further, in the alternative, HARADA discloses the cross-linking agent being present from 0.01- 2% by weight [column 5 lines 58-60]. At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the cross-linking concentration of HARADA as a starting point for the cross-linking concentration optimization of CHANG. The person of ordinary skill in the art would be motivated to do so to obtain absorbents with excellent water retaining power [abstract]. Absorbency is an important feature of CHANG for such products as diapers.

3. Claims 1 and 3-23 are rejected under 35 U.S.C. 103(a) as obvious over U .S. Publication 2003/0055146 CHANG et al., hereinafter CHANG, in view of WO00/63470 BUETTNER et al., hereinafter BUETTNER.

The examiner has included the machine generated English translation of the WIPO document.

As for claims, 1 and 3-23, the examiner has argued that the spinning process of CHANG is a dry/wet extrusion process and given evidentiary support. In the alternate, CHANG teaches all of the features as per above. CHANG discloses a process for making a cellulosic lyocell form with superabsorbent polyacrylate [0075-0076 and 0080] including lyocell. BUETTNER suggests that lyocell can be formed via a dry-wet extrusion process [abstract] to form highly absorbent forms [abstract]. At the time of the invention the person of ordinary skill in the art would look to BUETTNER for methods of forming lyocell fibers. Both BUETTNER and

CHANG are related to highly absorbent forms and both teach lyocell. It is typically *prima facie* obvious to use known techniques to improve similar methods in the same way. The person of ordinary skill in the art would look to BUETTNER for methods of forming the lyocell which allow for the formation of highly absorbent structures. BUETTNER teaches that lyocell is formed with methylmorpholine-N-oxide monohydrate [paragraph 1 and 2] and suggests that polyacrylate can be mixed in while forming [paragraph 11-13] the extruded fibers. BUETTNER suggests that this method allows for the precipitation of the finely divided particles of polymer [paragraph 12]. BUETTNER gives further motivation for this using method in the process of CHANG by stating that it obtains excellent absorptive capabilities and speed of absorption [abstract]. Increased absorption is an important property for the class of products disclosed by CHANG including diapers.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY J. CALANDRA whose telephone number is (571) 270-5124. The examiner can normally be reached on Monday through Thursday, 7:30 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven P. Griffin/
Supervisory Patent Examiner, Art Unit 1791

/Anthony J Calandra/
Examiner, Art Unit 1791